## **CLAIMS**

- 1. A method for identifying an agent capable of modulating expression of CYP2S1 by a cell, comprising the steps of:
  - a) providing a cell or cells capable of expressing CYP2S1;
  - b) contacting a test agent with said cell(s);
- c) incubating said cell(s) under conditions which are conducive to enable expression of CYP2S1 when in the absence of the test agent; and
- d) detecting whether or not the test agent modulates expression of CYP2S1.
- 2. A method for identifying an agent capable of modulating expression of CYP2S1 by a cell, comprising the steps of:
- a) providing a cell comprising the sequence as shown in Figure 7 or a fragment thereof capable of controlling transcription and/or translation of a reporter nucleic acid located downstream thereof;
  - b) contacting a test agent with said cell(s);
- c) incubating said cell(s) under conditions which are conducive to enable transcription and/or translation of said reporter nucleic acid located downstream; and
- d) detecting whether or not the test agent modulates transcription and/or translation of said reporter nucleic acid.
- 3. The method according to claim 2 wherein the reporter nucleic acid is capable of encoding glutathione S-transferase, an antibiotic, a chromogenic substrate, such as  $\beta$ -galactocidase, luciferase, a fluorescent protein, such as green fluorescent protein, or chloramphenicol acetyl transferase.
- 4. The method according to any preceding claim wherein said cell(s) is/are a skin cell(s).
- 5. The method according to claim 3 wherein said skin cell(s) is/are a keratinocyte and/or an epidermal cell(s).

- 6. The method according to any of claims 1 to 3 wherein said cell(s) is a mammalian, bacterial, yeast or insect cell which has been genetically engineered so as to be capable of expressing CYP2S1 or said reporter nucleic acid.
- 7. The method according to claim 6, when dependent on claim 1 wherein the cell(s) has/have been genetically engineered so as to comprise nucleic acid capable of encoding CYP2S1 and a sequence upstream thereof capable of controlling transcription and/or translation of said nucleic acid.
- 8. The method according to claim 7 wherein the sequence upstream of said nucleic acid capable of encoding CYP2S1 comprises the sequence as shown in Figure 7 or transcription and/or translation controlling fragment thereof.
- 9. A method for identifying an agent capable of modulating activity of CYP2S1, comprising the steps of:
  - a) providing CYP2S1;
  - b) contacting a test agent with said CYP2S1; and
  - c) detecting whether or not the test agent modulates activity of CYP2S1.
- 10. The method according to any preceding claim wherein the test agent is an antisense oligonucleotide, and RNAi molecule, a chemical drug candidate, a peptide or protein, radiation, such as UV radiation or radiation in combination with a chemical which is capable of being activated by said radiation.
- 11. The method according to any preceding claim, wherein the test agent is capable of increasing expression and/or activity of CYP2S1.
- 12. The method according to any one of claims 1 to 10 wherein the test agent is capable of decreasing expression and/or activity of CYP2S1.
- 13. The method according to any preceding claim for identifying an agent capable of modulating CYP2S1 expression and/or activity for use in treating a skin disorder.

- 14. The method according to claim 13 wherein the skin disorder is psoriasis.
- 15. The method according to any one of claims 1 and 4 to 8 wherein detection of any modulation in the expression of CYP2S1 is carried out using an antibody specifically reactive to CYP2S1.
- 16. The method according to any one of claims 1 and 4 to 8 wherein detection of any modulation in the expression of CYP2S1 mRNA is carried out using quantitative real time PCR analysis.
- 17. An isolated nucleic acid molecule capable of controlling expression of CYP2S1, the nucleic acid molecule comprising the sequence of Figure 7 or fragment thereof.
- 18. A recombinant expression vector comprising a nucleic acid capable of encoding CYP2S1 or a reporter protein under transcriptional and/or translational control of the isolated nucleic acid molecule according to claim 17.
- 19. The recombinant expression vector according to claim 18 wherein the reporter protein is glutathione S-transferase, an antibiotic, a chromogenic substrate, such as  $\beta$ -galactocidase, luciferase, a fluorescent protein, such as green fluorescent protein, chloramphenicol acetyl transferase.
- 20. A host cell comprising the recombinant vector according to either of claims 18 or 19.
- 21. The host cell according to claim 20 wherein the cell is a mammalian, bacterial, yeast or insect cell which has been genetically engineered so as to be capable of expressing CYP2S1 or said reporter nucleic acid.
- 22. Use of the isolated nucleic acid molecule, expression vector or host cell of claims 17 to 21 in the method according to any one of claims 1 to 8 and 10 to 14.

- 23. A method of making CYP2S1 comprising culturing the host cell according to claim 20 under conditions such that CYP2S1 is expressed; and recovering CYP2S1.
  - 24. Isolated CYP2S1 produced according to claim 23.
- 25. A pharmaceutical composition comprising isolated CYP2S1 according to claim 24 in combination with a pharmaceutically acceptable carrier therefore.
- 26. Use of an antibody that binds specifically to CYP2S1 in the method according to any one of claims 1 and 4 to 15.
- 27. Use of a recombinant vector capable of expressing CYP2S1, in gene therapy.
- 28. The use according to claim 27 wherein the vector is according to claim 18.
- 29. The use according to claim 27 wherein expression of CYP2S1 is under control of an inducible promoter.
- 30. Use of CYP2S1 in the manufacture of a medicament for treating a skin disorder associated with a decrease in CYP2S1 expression in skin, or for administering to a subject displaying reduced CYP2S1 expression.
- 31. Use of an agent identified by a method according to any one of claims 1 to 17 in the manufacture of a medicament for treating a skin disorder associated with increased or decreased expression of CYP2S1.
- 32. A method of preventing, treating or ameliorating a skin condition in a subject related to increased or decreased CYP2S1 expression in skin, which comprises administering to a mammalian subject CYP2S1, a vector capable of expressing CYP2S1, or an agent capable of modulating expression of CYP2S1 in skin tissue.

- 33. A method of diagnosing a skin condition associated with increased or decreased expression of CYP2S1, or a predisposition to such a condition comprising detecting a level of CYP2S1 in a test skin sample and comparing this against a normal control such that an increase or decrease in CYP2S1 expression in the test sample as compared to the normal control is indicative of a skin condition or predisposition to a skin condition.
- 34. A method of diagnosing a skin condition associated with increased or decreased expression of CYP2S1 or a predisposition to such a condition comprising detecting a polymorphism in a CYP2S1 gene or upstream sequence thereof, which effects expression of CYP2S1, wherein detection of a polymorphism is indicative of a skin disorder associated with increased or decreased CYP2S1 expression, or predisposition thereto.
- 35. A method of detecting effectiveness of a skin treatment to be administered to a patient suffering from a skin condition, comprising the steps of:
- a) obtaining a sample of diseased skin and detecting a level of CYP2S1 expression in the sample of diseased skin prior to administration of the skin treatment;
  - b) administering said skin treatment to the patient; and
- c) after a period of time, obtaining a further sample of diseased skin and detecting whether or not there has been an increase or decrease in CYP2S1 expression.
- 36. A method of detecting whether or not a subject is likely to respond to a skin treatment comprising the steps of:
- a) obtaining samples of diseased skin and non-diseased skin from a subject; and
- b) detecting a level of CYP2S1 expression in the diseased and nondiseased samples wherein an increase in expression of CYP2S1 in diseased skin is indicative of a subject who may respond favourably to a chemical which is metabolisable by CYP2S1.

- 37. A method of identifying possible new skin treatment drug candidates comprising contacting the drug candidate with CYP2S1 and observing for metabolites of said drug candidate.
- 38. A method of improving effectiveness of a skin treatment being administered to a subject comprising the steps of increasing or decreasing expression of CYP2S1 in diseased skin to be treated.